Massachusetts EM&V Framework

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Overview

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The Policy Context

- 2013-2015 program budget of roughly $2 billion
- Very aggressive annual savings goals
- Sharply increasing program activity

Three-Year Energy Efficiency Plan Goals	2010-2012	2013-2015*	% Increase
Total Program Investment ($ millions)	$1,627	$2,246	38%
Total Benefits ($ millions)	$6,039	$8,980	49%
Annual Electric Savings (GWh)	2,625	3,706	41%
Annual Gas Savings (million therms)	57	72	26%
Total Costs (TRC) ($ millions)	$2,178	$2,774	28%
Net Benefits (TRC) ($ millions)	$3,861	$6,206	60%

* Per DPU Order January 31, 2013

MA EM&V Framework

- MA EM&V program is both extensive and complex
  - 2013-2015 Plan calls for three-year EM&V budgets of nearly $70 million
- Under the current EM&V framework, all studies are:
  - Statewide
  - Administered by individual PAs, with responsibility systematically distributed across PAs by research area
  - Planned and performed collaboratively with EEAC and its consultants
  - Performed by standing contractor teams under long-term contracts
- EM&V Management Committee (EMC)
  - Provides a forum for statewide evaluation issues, and provides guidance, planning and direction to each evaluation research area
- Under the framework, if consensus cannot be reached, authority for decision-making to reside with EEAC or its designee.
  - But since framework developed in 2009, 100% of issues resolved collaboratively!

Summary of Current Status

- Well over 100 studies completed over last three years
- Currently in process of implementing 2013-2014 EM&V plan
  - 50+ studies currently in progress
- Wide range of topics:
  - Gross savings Impact evaluations
  - Net savings impact evaluations
  - Process evaluations
  - Market assessments
  - Baseline research
- Once finalized, studies ultimately posted on EEAC website
  - http://www.ma-eeac.org/EMV.html

Where We Are At: A View From 30,000 Feet

- Gross Savings
  - Will always remain important, but effort is mature and stable
  - A substantial body of research over many years has established that the resource is there, and realization rates are tending to converge on 100%
- Net-to-gross
  - Unprecedented scope and scale of programs have necessitated the development of new methods
  - Recently established ongoing top-down methods and market effects research programs
- Challenges in meeting aggressive savings goals have led to a sharp focus on EM&V helping implementers go deeper and broader
  - Studies intended to draw lessons from variations in outcomes across different PAs, sectors, and regions
  - Carefully targeted market assessment studies
  - Studies in support of new initiatives (e.g., codes and standards compliance enhancement)
  - Studies in support of newer technologies (e.g., minisplits)

- Quick Review of Studies Underway in Massachusetts

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C&I Research Area

Impact:

- Impact Evaluation of the Upstream Lighting Program – Complete
- Impact Evaluation of 2011-2012 CHP Installations - Complete
- Lighting Controls Impact Evaluation – Draft Report
- Impact Evaluation of 2012 Custom HVAC Installations – In Progress
- Impact Evaluation of 2012 Prescriptive Non-Lighting Installations – In Progress
- Impact Evaluation of 2012 Prescriptive Gas Installations – In Progress
- Impact Evaluation of 2013 Custom Gas Installations – Study Scoping
- Impact Evaluation of 2013 Custom Electric Installations – Study Scoping
- Impact Evaluation of 2013 Prescriptive Electric Installations – Study Scoping

C&I Research Area (continued)

Process:

- Direct Install Process Evaluation – In Progress

Other:

- Mid-Sized Customer Assessment – Complete
- Existing Buildings Market Characterization – Draft
- Whole System Approach – In Progress
- LED Market Effects Study – In Progress
- Boiler Market Characterization – In Progress
- C&I Code Compliance Follow-up – In Progress
- 2012 C&I Customer Profile – Draft
- Learning From Successful Projects – In Progress
- How PA Differences Affect Program Outcomes – In Progress
- Commercial Real Estate Market Assessment - Study Scoping
- Supply Side Population Characterization - In Progress
- EISA T-12 Phase Out Research – In Progress
- Existing Buildings Market Characterization – C&I Customer On-site Assessments - Study Scoping
- C&I Market Effects Study - Study Scoping

Highlighted C&I Studies

- 2012 C&I Customer Profile
  - Analyzed available C&I data to determine what customer segments have participated extensively, where they are located, how participation varies through time and across measures, and what segments remain to be served. Study provided insight about the differences in energy efficiency program participation though the application of a series of standardized cross PA lenses.
  - The overall participation rate for 2012 C&I population was calculated at approximately 2.3% for electric PAs and 3.0% for gas PAs. The percent savings achieved by measures installed in 2012 is calculated at approximately 2.4% for electric PAs and 1.1% for gas PAs.
- Mid-Sized Customer Assessment
  - Examined whether mid-size C&I customers were being optimally served by existing energy efficiency program by providing an extensive analysis of the segmentation and marketing strategies of C&I customers by customer size, as defined by the electric demand.
  - Evidence suggested that mid-size customers are not optimally served, particularly true for non-lighting measures. Research suggests that customers require more comprehensive measure solutions but it is expensive to service these customers. Study found that there are a limited number of contractors sufficiently trained in comprehensive solutions and mid-size customers are less profitable for contractors to pursue

Residential Research Area

Impact:

- Regional Lighting Logger Study - Complete
- Residential New Construction Net Impacts - Complete
- Low Income Lighting Hours of Use and Thermostat Study – Draft Report
- Incremental Cost Study – Study Scoping
- HEHE Impact Evaluation – In Progress
- Ductless Mini-Split Heat Pump Assessment – In Progress
- Advanced Power Strips Evaluation – Study Scoping
- Low Income Multifamily Impact Evaluation – In Progress
- Residential Market Effects Study – In Progress
- Market Lift Assessment – In Progress
- Multi-Stage Lighting Net-to-Gross Study – In Progress
- Cool Smart Impact – Study Scoping

Residential Research Area (continued)

Process:

- HES Program Delivery Assessment – In Progress
- HEAT Loan Process Analysis – In Progress
- Multifamily Process – In Progress
- Multifamily High Rise New Construction Baseline Assessment – Study Scoping
- Appliance Program Evaluation – Study Scoping

Market Assessment:

- Residential Customer Profile Study – In Progress
- Trade Ally Panels – Study Scoping
- Lighting Market Assessment – In Progress
- Lighting Saturation Stagnation Assessment – In Progress

Highlighted Residential Studies

- Residential New Construction Impacts Study
  - Utilized a builder survey, Delphi panel, and modeling of home energy usage
  - Study found a NTG of 1.87, due mostly to high non-participant spillover (1.39)
  - Non-program homes are responsible for majority of MMBtu savings
- HEHE Net to Gross
  - Resulted in higher NTG ratios
  - Strong incentive levels moved market towards higher tiered products
  - Study also showed some program induced early retirement but not as much as anticipated, resulting in reduced NEIs

Cross-Cutting Research Area

Impact:

- Behavioral Program Persistence Study – In Progress

Other:

- Serrafix CMI – Draft Report
- Umbrella Mktg - 2013 Post Campaign/MassSave Brand Assessment – Draft Report
- Umbrella Mktg - COOL SMART/GasNetworks Brand Assessment – Draft Report
- Efficient Neighborhood+ Initiative – Draft Report
- Efficient Neighborhood+ Initiative, Phase I – In Progress
- Efficient Neighborhood+ Initiative, Phase II – In Progress
- Codes & Standards Coordination/Planning – Study Scoping
- Market Effects Strategic Planning – In Progress
- Net-To-Gross Top-Down NTG Methods – In Progress
- Net-To-Gross Electric C&I NTG – In Progress
- Non Energy Impacts - Low Income Health NEIs – Study Scoping
- Non Energy Impacts - Using C&I NEIs for Project Recruitment – Draft Report
- Non Energy Impacts - Quantifying C&I New Construction NEIs – In Progress
- Retrospective Electric DRIPE – Study Scoping